II. Remarks

The Official Action of October 6, 2009 has been thoroughly studied. Accordingly the changes presented herein for the application, considered together with the following remarks are believed to be sufficient to place the application into condition for allowance.

By the present amendment independent claims 1 and 14 have been changed to recite a secondary oven vulcanization step that involves heating which follows a press vulcanization step.

Support for this limitation can be found in paragraph [0022] of applicants' original specification.

Further the limitations of claims 2-4, 6 and 7 have been incorporated into independent claim 1.

Applicants and the undersigned would like to express their appreciation to Examiner Reddy for allowing the undersigned to conduct a telephonic interview with the Examiner on December 11, 2009.

During the interview the undersigned noted that the present invention did not require the secondary irradiation vulcanization step of Hiramatsu et al. The Examiner cautioned that any amendments made to distinguish the present invention over the secondary irradiation vulcanization step of Hiramatsu would have to be supported by the original specification.

Accordingly by the present amendment the pending independent claims 1 and 14 have been changed to recite a secondary oven vulcanization step that involves heating (as opposed to irradiation using gamma rays). As will be show below, this limitation distinguishes over Hiramatsu et al.

During the December 11th interview the Examiner suggested that the claims should be limited to the amounts of the components and specific components.

Accordingly by the present amendment independent claim 1 has been changed to recite an aliphatic unsaturated dicarboxylic acid monoalkyl ester-copolymerized and the amounts of components (A) and (B).

Entry of the changes to the claims is respectfully requested.

Claims 1, 5, 8, 10, 12 and 14-16 are pending in this application.

Claims 1-8, 10, 12 and 14-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,156,849 to Moriyama et al. in view of JP 61-171737 to Hiramatsu et al. and U.S. Patent No. 5,502,095 to Ueshima et al.

For the reasons set forth below, it is submitted that each of the pending claims are allowable over the prior art of record and therefore, the outstanding rejection of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

The Examiner has relied upon Moriyama et al as disclosing:

> ...an acrylic elastomer composition, which comprises an acrylic elastomer obtained by copolymerization with 0.1 to 10% by weight of fumaric acid mono-lower alkyl ester on the basis of total monomer mixture, and an aromatic diamine compound vulcanizing agent. It is effectively applicable as a vulcanization molding material for seal members or hose members (abstract). Fumaric acid mono-lower alkyl ester-containing acrylic elastomer can be further copolymerized with other vinyl or olefinic monomer (column 3, lines 9-11). The aromatic diamine compound can be used in an amount of about 0.1 to about 5 parts by weight per 100 parts by weight of the fumaric acid mono-lower alkyl ester-containing acrylic elastomer (column 3, lines 52-56). The acrylic elastomer can be further admixed with a reinforcing agent, a filler, an antioxidant etc, if necessary (column 4, lines 17-21). Its vulcanization molding can be carried out by compression molding, injection molding, transfer molding etc (column 4, lines 28-29). The fumaric acid mono-lower alkyl ester-containing acrylic elastomer can be admixed with an aromatic diamine compound vulcanizing agent (column 3, lines 33- 36).

The Examiner concedes that:

Moriyama et al is silent with respect to thiazole-based compound, amine based antioxidant, mixture of amine-based/ph enol-based antioxidant and thiazole; amount of thiazole based compound; and the wall thickness of molded-article, such as gasket or 0- ring, of not more than 30 mm.

The Examiner has accordingly relied upon Hiramatsu et al. as teaching:

...subjecting elastomer to crosslinking with S or S-containing compounds. The sulfur containing compounds include thiazoles such as mercaptobenzothiazole or dibenzothiazyl disulfide. The crosslinked material obtained has low permanent compressive strain and high heat resistance while maintaining excellent workability and moldability characteristic of S-crosslinked material (abstract).

The Examiner has relied upon Ueshima et al. as teaching:

...elastomeric composition comprising rubber and has improved flexibility and compression set (abstract). The rubber includes hydrogenated acrylic acid ester-butadiene copolymer rubber (column 5, lines 21-26). The compatibility can be further enhanced by introducing functional group such as a carboxyl group (column 5, lines 35-37) which is effected by copolymerizing monomers such as acrylic acid (column 5, lines 40-44). The elastomeric composition can contain additives such as antioxidants in combinations of two or more and includes amine type antioxidants (column 9, lines 62-65), phenol-type antioxidants (column 10, line 17), and imidazole type antioxidants such as zinc salt of 2-mercaptobenzothiazole (column 10, line 14).

In combining the teachings of Moriyama et al., Hiramatsu et al. and Ueshima the Examiner has taken the position that:

... it would have been obvious to one skilled in the art at the time invention was made to add thiazole and another antioxidant (amine-based or phenol-based) to the acrylic elastomer composition of Moriyama et al, because Hiramatsu et al teach that thiazoles can be added to elastomeric compositions to improve the compression set while Ueshima et al teach that a combination of two or more antioxidants including amine-type, phenol-type and thiazole antioxidants can be added to elastomeric compositions and one skilled in the art would have been motivated to add thiazole and another antioxidant, based either on phenol or amine, to the elastomeric compositions of Moriyama et al for improving compression set while inhibiting oxidative degradation during the vulcanization process.

The present invention, as claimed, uses secondary vulcanization that is carried out by heating.

In contrast to applicants' claimed invention Hiramatsu et al. relies upon primary cross-linking with sulfur-based compounds followed by secondary cross-linking using gamma radiation rays.

Hiramatsu et al. discloses that in a cross-linking method that uses sulfur-based cross-linking, physical properties such as compression set ("CS") can be effectively improved by conducting the secondary vulcanization by means of irradiation with gamma radiation rays as discussed in the *Problem to be Solved by the Invention* section (See previously submitted copy of English translation).

Illustrated examples of sulfur-vulcanizable elastomers that are disclosed by Hiramatsu et al. include active chlorine-containing rubber, but fail to include any carboxylic group-containing acrylic elastomers (as claimed by applicants).

In comparative Example 5 and Example 3 of Hiramatsu et al. an active chlorine-containing rubber was used without any thiazole-based compound. As can be seen the secondary vulcanization by irradiation (Example 3) was necessary to improve the compression set.

Thus, Hiramatsu et al. clearly teaches and requires secondary vulcanization that is carried out by irradiation (by gamma rays).

In other words, Hiramatsu et al. teaches or discloses that compression sets cannot be improved unless secondary vulcanization is carried out using irradiation.

It would be improper to rely upon Hiramatsu et al. for teaching cross-linking with S or S-containing compounds, to the exclusion of the teaching (or requirement) in Hiramatsu et al. of secondary vulcanization by irradiation.

This is precisely the holding in *In re Wesslau*:

> It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position ***to the exclusion of other parts*** necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Wesslau147 USPQ 391, at 393(CCPA 1965)

Inasmuch as applicants' claimed invention carries out secondary vulcanization in an oven with heating, and not by irradiation, it is submitted that Hiramatsu et al. cannot be relied upon in combination with Moriyama et al. (and Ueshima et al.) as rendering applicants' claimed invention obvious.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

Conclusion

It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved; the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 23-1925 and please credit any excess fees to such deposit account.

Respectfully submitted,

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